IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) An encoder for a CATV upstream data channel transmitter, comprising:

a plurality of convolutional encoders for receiving data values, each of said convolutional encoder concatenated with an outer Reed-Solomon encoder;

an interleaver memory, wherein each encoder generates a portion of the data values to said interleaver memory;

a bit interleaver interconnected with said convolutional encoder; and

a symbol mapper interconnected with said bit-interleaver.

2. (Original) The encoder of claim 1, wherein said symbol mapper is a QAM mapper.

3. (Currently Amended) A system which comprises:

an encoder for a C A N upstream data channel transmitter, comprising:

a convolutional encoder for receiving data values, said convolutional encoder concatenated with an outer Reed-Solomon encoder;

a bit interleaver interconnected with said convolutional encoder, and

a symbol mapper interconnected with said bit interleaver; and

a bit-interleaved decoder for a CATV upstream channel receiver, comprising:

a scorer for receiving symbols and for scoring each bit for a decoding of a received soft QAM symbol by the minimum squared distance from corresponding symbols of the QAM constellation defined by said each bit to the real or imaginary part of said received soft QAM symbol;

a bit de-interleaver interconnected with said scorer; and

a convolutional decoder interconnected with said bit de-interleaver.

4. (Cancelled).

5. (Previously Presented) A decoding method, comprising:

receiving a sequence of soft QAM symbols;

scoring each bit for a decoding of a received soft QAM symbol by the minimum squared distance from corresponding symbols of the QAM constellation defined by said each bit to the real or imaginary part of said received soft QAM symbol;

de-interleaving said bits subject to said scoring; and

convolutionally decoding said de-interleaved bits using results of said scoring.

6. (New) The encoder of claim 1, further comprising:

a plurality of convolutional encoders; and

an interleaver memory, wherein each of the plurality of convolutional encoders generates a portion of the data values to said interleaver memory.